BLYTH, EDWARD. *Mr. Blyth's monthly report for December meeting, 1842. Appendix to Mr. Blyth's report.* Journ. Asiat. Soc. Bengal **13:** 384. 1844.

BURMEISTER, H. *Beitrage zur Naturgeschichte der Rankenfusser.* Berlin, 1834.

DARWIN, CHARLES. *A monograph on the subclass of Cirripedia:* 529–586. Ray Society, 1854.

GENTHE, K. W. *Some notes on* Alcippe lampas *and its occurrence on the American Atlantic shore.* Zool. Jahrb. Anat. **21:** 181–200. 1905.

GRUVEL, A. *Monographie des cirrhipedes:* 310–335. Paris, 1905.

GERSTÄCKER, A. *Arthropoda,* in Bronn's *Klassen und Ordnungen* **5:** 406–589. 1866.

HANCOCK, A. *Notice of the occurrence, on the British coast, of a burrowing barnacle belonging to a new order of the class Cirripedia.* Ann. Mag. Nat. Hist. **4**(2): 305–314. 1849.

KRUGER, PAUL. *Cirrepedia.* in Bronn's *Klassen und Ordnungen* 5:1:3:3. 1940.

KUHNERT, L. *Beitrag zur Entwicklungeschichte von* Alcippe lampas *Hancock.* Zeitsch. Morphol. Ökol. **29:** 45–78. 1934.

NORMAN, A. M. *New generic names for some Entomostraca and Cirripedia.* Ann. Mag. Nat. Hist. **11**(7): 367–369. 1903.

STRAND, E. *Miscellanea nomenclatorica zoologica et palaeontologica. I–II.* Arch. Naturg. **92A** *Crustacea:* 40–41. 1926.

ZOOLOGY.—Polydora nuchalis, *a new species of polychaetous annelid from California.*[1]

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The spionid worm described herein is the tenth species of *Polydora* to be reported from California (for others see Hartman, 1941). Although resembling several other species in some characteristics, the worm is clearly and consistently different; it is therefore described as a new species.

Polydora nuchalis, n. sp.

The body is generally depressed; it is most so at the modified fifth segment where it is more than twice as wide as deep. It is less depressed in front of and behind this segment. The body tapers posteriorly just before the terminal flaring pygidium. The range observed in the number of segments is 80 to 110; in millimeters of length 15 to 20. In life this polydorid is translucent yellow in color, some individuals having a smoky surface pigmentation in the anterior two-thirds of the body and in the pygidial region. The palpi lack pigment granules but are colored bright red by the blood as are the middorsal and midventral lines and the branchiae of living specimens.

The prostomium is bifid anteriorly and extends posteriorly as the caruncle to the forward margin of the third setigerous segment [third segment below] (Fig. 1, b). A median nuchal tentacle, on which the specific name is based, arises from the prostomium at the level of the first segment. Two pairs of eye spots in a trapezoidal arrangement are found near the palpal bases. The posterior ones are closer together and slightly smaller than the anterior pair. The palpi are long and extend back to the twentieth segment in preserved specimens. The peristomium flares to each side of the prostomium; it is bounded above by the latter and in front and ventrally by the oral aperture.

The first segment lacks notosetae; the parapodia are represented by notopodial and neuropodial lobes and a neuropodial fascicle of setae (Fig. 1, a). The neuropodial lobe and setae are oriented on a line with the notopodial lobes of the succeeding segments. The short, first notopodial lobes are located dorsally just behind the palpal bases.

The next three segments have well-developed notopodial and neuropodial postsetal lobes and fascicles of long slender setae. The notopodial fascicle has two rows of setae including an anterior row of short limbate and a posterior one of longer capillary setae. This notopodial arrangement continues through segments 6 to 9. The neuropodia of segments 2 to 4 have capillary setae.

Segment 5 (Fig. 1, a) is larger than either the fourth or the sixth segment; it lacks postsetal lobes. Its notopodium has a bundle of anterior dorsal capillary setae and a slightly curved single series of large spines alternating with as many companion setae. The spines are largest anterodorsally and are gradually reduced in size posteriorly. They are weakly falcate in shape (Fig. 1, d); the companion setae are

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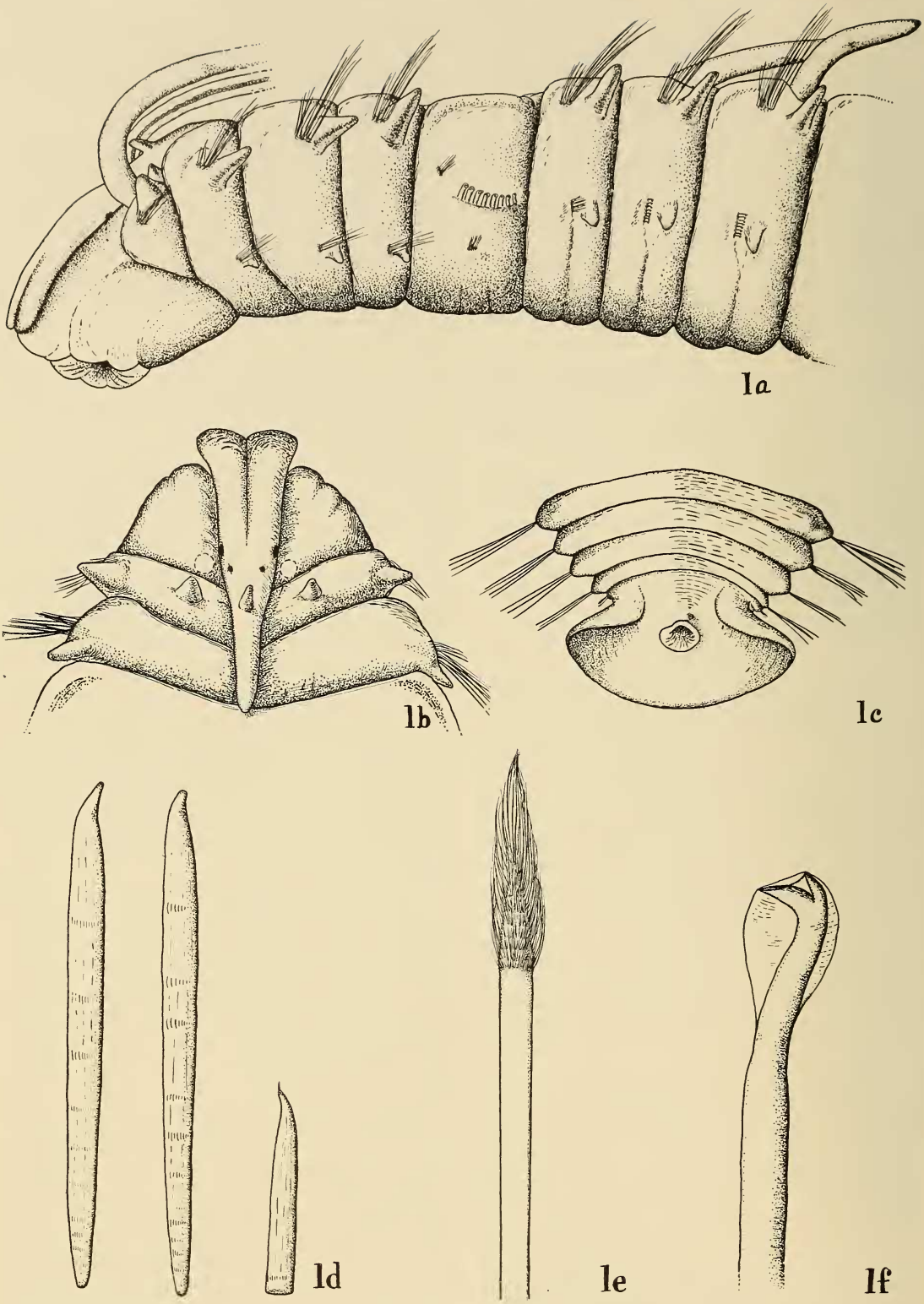

FIG. 1.—*Polydora nuchalis*, n. sp.: *a*, Anterior end, in left lateral view, × 53; *b*, anterior end, in dorsal view, × 53; *c*, pygidium, in posterior dorsal view, × 53; *d*, stout spines of the modified fifth segment showing new, worn, and developing spines, × 122; *e*, companion seta of the modified fifth segment, × 529; *f*, ventral hooded hook from the seventh segment, × 710.

plumose (Fig. 1, e). The neuropodium of segment 5 is vestigial; it has a fascicle of short capillary setae.

Segment 6 resembles segments 2 to 4. Segment 7 differs abruptly in having the beginning of the branchiae dorsally and the hooded hooks ventrally (Fig. 1, a). The vertical series of hooded hooks vary in number from 8 to 6; the anterior segments have the greater number. The hooks are distally bidentate. The main tooth forms an angle with the shaft of approximately 90° and an acute angle with the accessory tooth (Fig. 1, f). (See Söderström, 1920, p. 41, for method of angle measurement.) The notopodial lobes decrease in size from segment 7 to 15. They are small, papillar behind segment 15.

The branchiae are finger-shaped and overlap at the middorsal line. They are full-sized from segment 7 to the posterior fourth of the body There is a gradual reduction in size from this point. There are no specialized posterior notopodial spines or hooks. The pygidium is broad and flaring; it has a wide dorsal notch (Fig. 1, c). The anus is situated slightly dorsal of center.

This species resembles *Polydora cirrosa* Rioja (1943, pp. 233–238, figs. 8–25) in many characteristics but varies from it in the following features: (1) The caruncle extends only to the third instead of the fifth segment; (2) a neuropodial fascicle is present, not absent, in the fifth segment; (3) the notopodial lobes of the first segment and the median nuchal tentacle are short, never cirriform, even in mature specimens; (4) the stout spines and companion setae of the fifth, and the ventral hooded hooks are different.

Polydora nuchalis is also close to *Polydora ligni* Webster (1886, pp. 148–149, pl. 8, figs. 45–47) from which it differs by the following characteristics: (1) It lacks, instead of has, an accessory tooth on the stout spines of the modified segment; (2) the caruncle extends only to the third, instead of to the fourth, segment; (3) the hooded hooks differ.

It also resembles *Polydora websteri* Hartman (1943, pp. 70–72, figs. 1, a–h) but varies from it in that: (1) The caruncle extends only to the third, instead of to the fourth, segment; (2) it has a median nuchal tentacle; (3) the stout spines and companion setae of the fifth segment are different.

Holotype.—U.S.N.M. no. 24724, from Playa del Rey, Calif.

Distribution.—*P. nuchalis* occurs abundantly in the lagoon at Playa del Rey, Los Angeles County, Calif.

Biology.—The water of the lagoon at Playa del Rey varies considerably in salinity owing to alternate seasonal rains and evaporation. This species tolerates these varying salinities. It constructs mucus-lined tubes that are externally covered by a thin layer of sand; they penetrate the substratum to a depth of one or two inches. Associates in the lagoon are *Streblospio benedicti* Webster, *Capitella capitata* (Fabricius), and the amphipod *Corophium insidiosum* Crawford. A fiddler crab, *Uca crenulata* (Lockington), is abundant near the water's edge.

The eggs of *P. nuchalis* are deposited in transparent mucous capsules. The capsules are oriented in rosarylike chains and are individually attached to the wall of the tube by two strands which are continuations of the capsular material. Each capsule has as many as 100 eggs. Only one to eight of the eggs in each capsule develop into larvae; the remaining ova serve as food for the encased larvae. The latter ordinarily reach the 9–12 segmented stage before being freed from the capsule. A short planktonic life may precede settling and tube building.

LITERATURE CITED

Hartman, Olga. *Some contributions to the biology of Spionidae from California.* Allan Hancock Pacific Exped. **7:** 289–324, 4 pls. 1941.

———. *Description of* Polydora websteri, *n. sp.* In Loosanoff, V. L., and J. B. Engle. Biol. Bull. Woods Hole **85:** 70–72, fig. 1, a–h. 1943.

Rioja, E. *Estudios anelidologicos VIII. Datos acerca de las especies del genero* Polydora *Bosc. de las costas Mexicanas del Pacifico.* Anal. Inst. Biol. Mexico **14:** 229–241, 25 figs. 1943.

Söderström, A. *Studien über die Polychaeten Familie Spionidae.* Dissertation. 286 pp., 1 pl., 174 figs. Uppsala. 1920.

Webster, H. *The Annelida Chaetopoda of New Jersey.* Annual Report New York State Mus. Nat. Hist., **39:** 128–159, 7 pls. 1886.